MEIGHEN & ASSOCIATES, P.C.
ATTORNEYS AT LAW

May 21, 2008

Hand Delivered

Cheryl Musgrave, Commissioner
Tim Rushenberg, General Counsel
Department of Local Government Finance
100 North Senate Avenue N1058B
Indiana Government Center North
Indianapolis, IN 46204

Re: Reassessment of LaPorte County / Tax Year 2006

Dear Commissioner and Counsel:

Please include this letter and its attachments into the record of administrative proceedings regarding the proposed reassessment of LaPorte County, Indiana, for the March 1, 2006 assessment date. Included herein are responses to Mr. Schwab's statements at the May 15, 2008 hearing and his later analysis provided the afternoon of May 20, 2008.

Initially know that neither LaPorte County officials nor Nexus are advocates for anything other than an accurate, uniform, and fair assessment of all LaPorte County taxpayers. Such assessments depend on competent, straightforward work product repeatedly proved to exist by LaPorte County; proved by the State's leading property tax consulting firm and a nationally published author in statistical analysis regarding assessment equity. The DLGF approved the 2006 County ratio study twice. Approval was the basis for preparation of tax bills; related certification of tax rates by the DLGF; and, the approval, issuance, and payment of tax bills. Now LaPorte County is faced with an unprecedented re-re-re-review of the 2006 ratio study by the DLGF. Plainly, this latest review is fraught with incompetent work product, studies with no reliability, and tests that do not have the correct statistical foundation. When one test or study is abandoned or dismissed, the DLGF simply substitutes another. Despite the DLGF's continuous search for something . . .anything . . wrong with assessments in LaPorte

County, the agency can't find it. The DLGF is an activist for reassessment, not accurate and just property tax assessments. This is not good government and is not in the interest of the taxpayers of LaPorte County.

The Legitimate Issues In This Reassessment Matter

To repeat, the DLGF has twice approved LaPorte County's 2006 ratio study. The prior findings by the agency are given great deference and are presumed valid. A heavy burden of proof rests with the DLGF to overturn two separate approvals of this agency which were relied up by LaPorte County, if the agency can overturn its prior decisions at all.

The County finds itself in the unique situation of a third review by the DLGF of the County's 2006 ratio study. The DLGF first approved the County study in March, 2007. Its second approval was in September, 2007. With these prior approvals, the DLGF has waived its right to issue reassessment and is barred by laches and estoppel from so doing.

LaPorte County has repeatedly argued that the DLGF is acting against the County in a biased, partial, and predisposed way regarding reassessment for the March 1, 2006 assessment date. Ignoring these issues for the moment, another issue is the statistical accuracy of the March 1, 2006 real property assessments. Quite simply, there is a lack of reliable and competent statistical evidence to support a reassessment. The history of the statistical evidence is telling.

On March 4, 2008, the DLGF provides the parties with its first ratio study which is incompetent work product, i.e., sales dates not sales amounts were used for ratio purposes. Nexus informs the DLGF of the multiple flaws in the agency's study and the study is withdrawn.

In her letter dated April 10, 2008, Commissioner Musgrave wrote that the Mann-Whitney statistical test reveals a likelihood of inequality between sold and unsold improved residential properties in nine townships of LaPorte County.

On April 14, 2008, the DLGF forwards its second ratio study to the parties. Nexus identifies the flaws of the second study, and the DLGF refuses to even correct its math errors. After various errors are corrected, and even ignoring the failure to account for outlier data, the failure to expand sample size, and the improper use of Auditor billing data as the comparative measure, the DLGF's second ratio study finds only two small property classes with possible assessment issues.

On May 1, 2008, the DLGF issues in resolution of reassessment basing its findings on alleged sales chasing on the Mann-Whitney statistical test.

On May 15, 2008, Dr. Thomas Hamilton presents to the DLGF his analysis of the Denne ratio study and Denne's statistical tests on sales chasing. Dr. Hamilton is an IAAO-award winner for assessment research and a nationally published author in statistical analysis regarding assessment equity. Dr. Hamilton's analysis of the Denne ratio study finds no reliability in the adjustment process enacted by Mr. Denne. Dr. Hamilton dismisses the Denne study. Dr. Hamilton's analysis of Mr. Denne's statistical tests on sales chasing finds that Mr. Denne's tests are not valid indicators of sales chasing. The tests used by Mr. Denne do not have the correct statistical foundation.

On May 20, 2008, the DLGF agrees that the Mann-Whitney statistical test cannot be used even though Mann-Whitney was the basis of its reassessment resolution. The DLGF issues a May 20, 2008 memorandum wherein Dr. Schwab uses another test, the Student t-test, for analysis of the situation. Dr. Hamilton has reviewed and analyzed Dr. Schwab's work, and finds it improperly conducted. Dr. Hamilton's "An Analysis of Parametric Sales Chasing Studies Conducted by the Indiana Department of Local Government Finance" and his "Statement on the Proper Use of Mann-Whitney U-tests" are attached hereto and labeled Exhibits A and B, respectively. In very general terms, Dr. Schwab's Student t-test is grossly wrong with statistical error. Dr. Schwab makes radical and incomplete assumptions about invoking the Central Limit Theorem to justify use of the parametric analysis. T-tests require a normal distribution of data and the data in LaPorte County are not normally distributed (nor would one expect them to be normally

distributed). Absent normal distribution, Dr. Schwab attempts to use the Central Limit Theorem but does not conduct repeated random sampling as required.

In short, Mr. Denne's work regarding sales ratios and sales chasing is abandoned. The Mann-Whitney statistical test – once the basis for reaasessment – is dismissed by the DLGF as an inappropriate statistical test. The DLGF's first ratio study is withdrawn. Dr. Schwab's Student t-test is conducted so as to justify reassessment, but the test is grossly in error and improperly conducted. All that remains is the DLGF's second ratio containing mathematical errors and failing to take outlier data into account, failing to expand sample size, and improperly using Auditor data as the comparative measure. [1] Even with these flaws, and after correcting math errors, the DLGF's second ratio study finds only two small property classes with possible assessment issues.

Given the lack of reliable and competent statistical evidence to support reassessment, the DLGF raises two new issues for the very first time at the May 15, 2008 hearing. The DLGF is now in a quandary about the contract between the LaPorte County Commissioners and Nexus (the Contract) entered into almost four years ago, a contract over which the DLGF had no authority until 2006 but which was nevertheless submitted to and approved by the DLGF in 2004. Also at the May 15 hearing, the DLGF made a conclusory statement that the cost tables used for the March 1, 2006 trending do not conform to State law.

After the May 15, 2008 hearing, Commissioner Musgrave is quoted by the media as taking into account the "overwhelming majority" of people in favor of reassessment. *The News-Dispatch,* May 16, 2008, attached Exhibit C. Reading Commissioner Musgrave's media comments gave the County its first indication that public opinion on reassessment is a consideration in this matter. Now that the County knows that public

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[1] The 2006 ratio study was based upon data at that time. Since the ratio study was conducted data have changed for multiple reasons such as changes in assessed value as the result of appeals. The DLGF's second ratio study uses data available after the ratio study was completed. It is not logical to suggest that assessments are not fluid and the assessment / appeals process should completely shut down once a ratio study is submitted. It is improper for the DLGF to use later data to test ratio studies. Perhaps the DLGF should require multiple ratio studies, i.e., one study before trending, another study after trending, and another using the exact data used by the Auditor to send tax bills.

opinion regarding reassessment is being taken into account, the County asks that the *facts* be examined:

- The total number of people speaking at the both the March 13, 2008 and May 15, 2008 public hearings is 57;

- The 2006 estimated population of LaPorte County is 110,106; [2]

- The percent of the population that spoke at either hearing is 0.0515, or five hundredths of 1%; and,

- 77% of the population is opposed to reassessment, while only 23% of the population is in favor of reassessment. *The News-Dispatch,* May 17, 2008, attached Exhibit D.

The Contract Between LaPorte County Commissioners And Nexus

The eleventh hour issue concerning the validity of the Contract is forged and cannot be used to support a reassessment or otherwise. It is simply too late for the DLGF to flip-flop on the Contract submitted and approved by the DLGF in 2004 with no challenges whatsoever by the agency until May 15, 2008. The DLGF's last minute questioning of the Contract signals the DLGF's campaign for reassessment. The agency's approval of a contract is meaningless and no county and vendor can rely upon past actions of the agency. This is inapposite to logical and sound business practices and good government. The Contract issue is off the table and cannot even be considered by the DLGF for the following reasons:

1. *The statutes setting forth contractual requirements do not include annual adjustments and the administrative rules did not make these contract requirements applicable to annual adjustment contracts until 2006. Despite statutory and administrative silence, LaPorte County submitted the Contract to the DLGF and the Contract was approved in 2004. Agency approval meets statutory requirements.*

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[2] The 2006 estimated population of LaPorte County, Indiana according to the U.S. Census Bureau. http://quickfacts.census.gov/qfd/states/18/18091.html

The Contract is a professional services agreement calling for professional services requiring technical judgment and for Nexus to provide advice based on skills and experience. Though the DLGF has some oversight over assessors, its oversight is not unlimited. Much like the DLGF does not have the authority over the hiring and contracting by LaPorte County of Dr. Hamilton to provide expert advice regarding this reassessment matter, the agency does not have the authority to control LaPorte County's hiring of Nexus to provide professional expert advice, at least not until 2006 at which time contractual requirements were written into administrative rules and specifically included in the general reassessment fund statute, Ind. Code § 6-1.1-4-28.5(a)(6).

Annual adjustments were established by Ind. Code § 6-1.1-4-4.5, effective January 1, 2002. The statute also obligated the DLGF to adopt rules for annual adjustments. The DLGF adopted Equalization Standards to establish procedures and standards for adjustments of real property value. 50 IAC 14, filed July 26, 2002.[3] 50 IAC 14 makes no mention of any requirements for annual adjustment contracts. Though changes were made to the administrative rules regarding adjustments to value throughout the years, the 2003, 2004 and 2005 editions of the rules make no mention of any requirements for annual adjustment contracts. For the very first time in 50 IAC 21-1-2.1, filed March 10, 2006, the DLGF applies the contractual requirements of Ind. Code §§ 6-1.1-4-17 through 6-1.1-4-19.5 to annual adjustment contracts. DLGF silence regarding the applicability of the statutes is given weigh and raises a strong presumption of acquiescence.

The contractual requirements found in Ind. Code §§ 6-1.1-4-17 through 6-1.1-4-19.5 address contracts for assessments and reassessments, these terms used either together in concert or separately. The statutes do not include annual adjustment contracts, "annual adjustments" being a term of art having a peculiar and appropriate

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[3] The purpose of 50 IAC 14 is to establish procedures and standards to be used in the adjustment of assessed value under Ind. Code § 6-1.1-13 which pertains to equalization. The "trending" statute, Ind. Code § 6-1.1-4-4.5, is not specifically mentioned in 50 IAC 14. However, it must be 50 IAC 14 pertains to annual adjustments, or the agency did not comply with legislative directive until 2006, four years after the legislature directed the agency to so do.

meaning in law which is understood according to its technical import. Statutory silence of annual adjustment contracts presumes exclusion of them. The DLGF did not find these statutory requirements applicable until 2006, two years after the Contract was submitted and approved by the DLGF, and two years after legal rights of both the County and Nexus attached.

Despite silence in the statutes and by the agency, LaPorte County did not hide the Contract from the DLGF. The Contract was given to the DLGF and was approved by the agency in 2004. Even assuming *arguendo* agency authority over the Contract and that statutory requirements applied to annual adjustment contracts when the Contract was executed, the law only requires contracts to be a standard model contract developed by the DLGF *or a contract which is specifically approved by the DLGF.* Ind. Code § 6-1.1-4-18.5(a). The Contract is legal and binding for many reasons, including the direct approval of the Contract by the DLGF.

The DLGF cannot turn back time and pretend that requirements currently in place should be applied to earlier legally binding documents.

2. *The LaPorte County Superior Court has already ruled upon the validity of the contract.*

The validity of the Nexus Contract has already been upheld by the LaPorte County Superior Court in *Connor, et al v. McDaniel, et al.,* Cause No. 46D02-0709-PL-129, decided March 7, 2008, a copy of which is attached as Exhibit E.[4] The DLGF does not have the authority to counteract or ignore courts.

3. *The inexcusable delay by the DLGF of even questioning the Contract at this late date is barred by laches and estoppel.*

The issue emanates from the DLGF's sudden flip-flop years after it approved the Contract. Even during the agency's review and re-review of LaPorte County's 2006 ratio study (resulting in approvals of the ratio study in March 2007 and again in September

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[4] A Notice of Appeal From Trial Court was filed by plaintiffs on April 3, 2008.

2007), the issue of the Contract was not raised in any way. If a quandary truly exists regarding the Contract, then exactly where was the DLGF in 2004, 2005, 2006, and 2007?

The County and Nexus relied upon the approval of the Contract. Since approval of the Contract almost four years ago, the Contract has been the catalyst for services which have provided the basis for preparation of tax bills; the related certification of tax rates by the DLGF; and, the approval, issuance, and payment of tax bills, all without DLGF challenge to the validity of the Nexus Contract. Nexus has performed years of work for LaPorte County and has foregone considerable other work to its significant financial detriment as a result of the Contract. The County has paid for these services and any declaration that the Contract is illegal and void would result in a huge financial cost should the work previously done under the Contract be required to be repeated, a cost in addition to the costs of this proposed reassessment action based upon incompetent and unreliable tests and studies. Further, the taxpayers of LaPorte would be thrown into even more confusion by having values changed and new taxes figured at this late date. The inexcusable delay by the DLGF of even questioning the approved Contract at this late date is barred by the doctrine of laches and estoppel.

"The rationale behind the doctrine of laches is that a person who, for an unreasonable length of time, has neglected to assert a claim against another waives the right to assert his claim when this delay prejudices the person against whom he would assert it." *Storm, Inc. v. Indiana Department of State Revenue*, 663 N.E. 2d 552, 557 (Ind. Tax Ct. 1996). The defense of laches has three elements: (1) inexcusable delay in asserting a right, (2) an implied waiver arising from knowing acquiescence in existing conditions, and (3) circumstances resulting in prejudice to the adverse party. *Id.* Due to the inexcusable delay by the DLGF in raising the question of the Contract, the doctrine of laches applies. The services rendered by Nexus have been ongoing for nearly four years with tax bills mailed and paid. Any action by the DLGF now would do substantial injustice to County government, LaPorte taxpayers, and Nexus.

In addition to the elements of laches set forth above, estoppel has the additional element of reliance. *Shearer v. Pla-Boy, Inc.* (1989), Ind. App. 538 N.E. 2d 247, 254. It is obvious from the work performed by Nexus and the preparation of tax bills and the like generated by the County over the last four years that they relied, to their detriment, upon the approved Contract which the DLGF now seeks to invalidate. The DLGF is estopped from invalidating the Contract.

The Conclusory Statement About Cost Tables

Also for the very first time at the May 15, 2008 public hearing, the conclusory statement was made that cost tables used for the March 1, 2006 assessment date do not conform to state law. It is difficult to respond to conclusions; however, it is reasonably believed that the conclusion is made because the County did not exclusively use Marshall and Swift cost and depreciation tables for tax year 2006. 50 IAC 21-5-2 permits counties to use data and other information other than just Marshall and Swift in cost and depreciation tables. The DLGF's current campaign goes against its own rules, prior statement by counsel, and the Indiana Tax Court.

50 IAC 21-5-2 reads that assessing officials may apply an annual adjustment factor. If there are insufficient sales, assessing officials *shall* derive annual adjustment factors or modify values of commercial and industrial property based upon one or more of the following: (1) Marshall and Swift cost and depreciation tables from the first quarter of the calendar year preceding the assessment date, (2) income data, rental data, market value appraisals, and other relevant evidence derived from appeals of the 2002 reassessment and adjusted, as applicable, to the January 1 of the year preceding the assessment date, (3) commercial real estate reports, (4) governmental studies, (5) census data, (6) multiple listing service (MLS) data, and (7) independent study performed by the Indiana Fiscal Policy Institute.

Renee Lambermont, former attorney for the DLGF, wrote that Marshall and Swift tables are not the only source that counties may use in annual adjustments or modification of value. Series of emails attached as Exhibit F. Ms. Lambermont's statements

regarding use of additional data and information is permitted by 50 IAC 21-5-2 and are consistent with Tax Court precedent, i.e., *P/A Builders & Developers, LLC v. Jennings County Assessor*, 842 N.E. 2d 899 (Ind. Tax Ct. 2006), *review denied*, holding that assessors shall adjust assessments to comply with the definition of market value-in-use. Making adjustments and modifying value plainly adheres to administrative rule and also to the fundamental principal enunciated by the 2002 Real Property Assessment Manual and the Court; namely: the goal of Indiana's property tax system is to arrive at the correct assessment of properties using objective and verifiable data.

Conclusion

There is no competent and reliable evidence upon which to base reassessment.

Respectfully submitted,

Marilyn S. Meighen

Karvel-Hamilton

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An Analysis of Parametric Sales Chasing Studies
Conducted by the Indiana Department of Local Government Finance

Data for LaPorte County, Indiana:
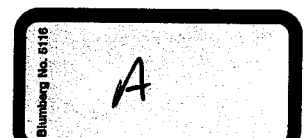2005 and 2006 Assessment Data

May 21, 2008

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Executive Summary

In Dr. Schwab's May 20, 2008 "Analysis of Dr. Hamilton's Report on Sales Chasing in LaPorte County Indiana", there are numerous questions raised. I will list them and then explain them individually. In summary, the parametric analysis proposed by Dr. Schwab is not conducted properly. He makes radical and incomplete assumptions about invoking the Central Limit Theorem to justify the use of parametric tests when a simple normality test shows that the parametric test used (the t test), cannot be reliably applied to the LaPorte County data. Again, there is no statistical evidence of sales chasing present in the data that would justify a complete reassessment of LaPorte County. The final two pages of this report contain my analysis of the original sales chasing arguments from the April 10, 2008 DLGF Report by Dr. Schwab.

Analysis

The items raised by Dr. Schwab in the May 20, 2008 "Analysis" that I will address are:

1. Shape of the sold and unsold properties' distributions
2. Appropriateness of the student t test
3. Differences in size of sold and unsold parcel counts
4. Sold properties are not obtained in a random manner (random)
5. Sold and unsold properties are not independent of each other

Item #1: Kurtosis, skew and variance describe the "shape" of a distribution and are called moments of a distribution and they give the data distribution its "shape". Central tendency (mean, median or weighted mean) is another "moment" which Mann-Whitney is testing in a sales chasing analysis when the "shape" of the sold and unsold properties' distributions are similar. (The Central Moment is zero, or the difference between the observed and hypothesized value, or the difference between sold and unsold property's means which, if equally treated would be zero). So, if skew and kurtosis are different between the sold and unsold properties distributions, their shapes differ. Obviously, if variance is different, shapes will also be different. Holding shape constant (i.e., where there is no difference evident in the sold and unsold properties' distributions), differences in central tendency can be properly tested using Mann-Whitney.

Item #2: Parametric inferential statistics are mathematical procedures for statistical hypothesis testing. These procedures assume the distributions of the variables being tested belong to known "parametrized" families of probability distributions. One such distribution is the standard normal distribution which is in the normal distribution family. The student t test is a valid method to use to test for differences in data where the data conform to a strict set of distributional requirements for the normal distribution. The student t distribution will approximate the normal distribution when a sufficient number of sample data are repeatedly drawn at random, and with replacement, from a given population of data. (A single draw from the population is but one indicator of the true, but unknown, population's distribution. A sold property set is a single draw and insufficient for invoking the Central Limit Theorem.) When repeated numerous times, the central tendency of the random draws' means will approach the true population's mean. Also the variance of the repeated random sampling of means will approach the population's variance. Again, a single draw (the universe of sold properties in a Township, for example) is insufficient to claim that the

sample is truly representative of the population's mean. Regarding the method of obtaining the sold property data set, which is not an experiment, I will address that as Item #4 below.

From the 1999 IAAO text, **_Mass Appraisal of Real Property_** by Robert J. Gloudemans regarding parametric tests of horizontal equity on page 295 it is stated, "Parametric tests are available, but their validity is limited by the assumptions they make concerning the distribution of the data." There are distributional limitations when using the nonparametric Mann-Whitney test and there are distributional assumptions when using the parametric student t test. On page 300 of the same text a warning is issued regarding parametric tests, "The validity of these tests assume that the ratios from each property group being analyzed are normally distributed and have equal variance (the _Laverne test_ can be used to evaluate the equal variance assumption). Often these assumptions are not realistic."

Calculating a t statistic is a simple task. Inferring its significance is another matter. The calculated student t statistic is typically compared to a value from a t table. When the sample size is significantly large, the critical t value approximates the critical z value for a standard normal distribution. Therefore, the critical t value is similarly based on the parameters of a standard normal distribution. For smaller samples, the critical t value will differ from the critical z value. So to compare a calculated t value to the critical t (or z) value, one is relying on the presumption that the underlying data have a specific distributional form with specific parameters (variance, skew and kurtosis). That is why we call the t statistic a "parametric" statistic. Parametric statistics are statistics where the population is assumed to fit any parametrized distribution (most typically the normal distribution). To test a hypothesis, one compares a t value to the student t table, but they should not do so if the population parameters, from which the data used to calculate the student t are derived, are not typical of a "normal" data distribution. The calculated t value and the critical t value will be derived from different distributions and a direct comparison is not possible. Oftentimes, researchers will transform sample data from their original form to another form so that the transformed data are "normal". A common transformation is to use natural logs of actual data when the original data are skewed. This way, the researcher can properly use the t or z tables to test for statistical significance.

In addition to verifying that the population has a specific distribution to which t tests can be conducted, deciding on the proper t test is not a simple process. The type of student t test to conduct depends on the data[1]. The assessment data are not being compared to a hypothetical value—rather two groups are being to be compared to each other (testing for a difference in central tendency). The proper t test also cannot be the paired t test (sold and unsold samples are not the same size). So the proper test to conduct must be an unpaired t test. An unpaired t test does not require that the two groups' variances are the same, but it does require that the samples are drawn from normally distributed populations. If samples are repeatedly and randomly drawn from a population of data, then one can assume from the Central Limit Theorem, that the sampling distributions of the sample means will approximate the normal distribution and the student t test can be used. Without repeat sampling, one cannot invoke the Central Limit Theorem.

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[1] This material is substantially from Joy Ying Zhang's Carnegie Mellon University website, http://projectile.is.cs.cmu.edu/research/public/talks/t-test.htm.

Because a single sample of sold properties is not a sampling distribution of random draws from the population, prior to running a student t test one must test whether the data in each Township conforms to a normal distribution of data. A normality test, such as Shapiro-Wilk and/or Kolmogorov-Smirnov test can be employed to verify that the assessor's data in each township and/or neighborhood conforms to a normal distribution. If the data do not conform to a normal distribution, then the t test cannot be performed. Another way to look at this problem is simply this: If we can directly test if the data are normally distributed, why guess about the situation assume anything when all we need to do is test for normality?

Dr. Schwab quotes both the 1999 IAAO Standard on Ratio Studies and Dr. Hamilton's doctoral dissertation. There are a series of "conditional if" statements in the quotes he presents. Regarding the 1999 IAAO Standard, he even emphasizes the "conditional if" statements. In the 1999 Standard, "if the sample size is large enough (approximately thirty) and the sample is representative of the population, the distribution of sample means is approximately normally distributed regardless of the distribution of the individual ratios (Central Limit Theorem)."

Simply having a sample of at least thirty observations is insufficient to invoke the Central Limit Theorem. To use the Central Limit Theorem, the second condition, "and the sample is representative of the population", must also be true. If only one condition was necessary, then the word "and" which separates the two necessary conditions would be written "or". Therefore, the questions which must be answered prior to using an unpaired sample student t test are whether the data in each Township are normally distributed and whether the sample is representative of the population. Dr. Schwab states that, "(the t-test) assumes either that (1) the population is normally distributed, or (2) there are thirty or more observations per sample. In the latter case, the Central Limit Theorem asserts that the sample statistic (here the mean) will be normally distributed even if the population is not."

In general, the Central Limit Theorem states *if repeated samples are drawn from a population, as N (sample size) become larger, the sampling distribution of sampling means will approach normality with a mean of m and a standard deviation of s / √N; this theorem allows for inferences from samples to populations*. The key words here are "repeated samples are drawn from a population". Only after numerous repeated draws will the sample means reflect a normal population distribution. Each individual sample is not normal. Another view of the Central Limit Theorem is that "The Central Limit Theorem is a statement about the characteristics of the sampling distribution of means of random samples from a given population. That is, it describes the characteristics of the distribution of values we would obtain if we were able to draw an infinite number of random samples of a given size from a given population and we calculated the mean of each sample.[2]" Again, it is not correct to infer that a simple draw from the population will be normally distributed.

Another way to look at this situation is through experimental design regarding randomization for generalizing data to invoke the Central Limit Theorem. "Remember, sampling is an important tool for determining the characteristics of a population. We usually don't know the population's parameters (mean, standard deviation, etc.), but often want reliable estimates of them. Ensuring random (representative) sampling free of bias and sampling errors is important. Some sources of error can be accounted for in the experimental design (blind, double blind, latin square, etc.). An

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[2] From The Internet Glossary of Statistical Terms, http://www.animatedsoftware.com/statglos/sgcltheo.htm

important rule to remember is: No randomization, no generalization. What this means is, your results can not be generalized if proper randomization techniques did not occur in your sampling. Many masters degree students have visited their statistician AFTER collecting their data and discovered many months or years were wasted due to poor experimental design.[3]"

Regarding the magic number "thirty", Statistics Professor Dr. Jerry Dallal[4] of Tufts University states, "'Large' sample sizes can be as small as 30 per group if the two populations are roughly normally distributed. The more the populations depart from normality, the larger the sample size needed for the Central Limit Theorem to weave its magic, but we've seen examples to suggest that 100 observations per group is often quite sufficient.[5]" As can be seen from this source, a group with as much as 100 observations per random sampling draw might be needed before the t test can be properly conducted.

Additionally Dr. Dallal states, "For small and moderate sample sizes, the equal variances version of the test provides an exact test of the equality of the two population means. The validity of the test demands that the samples be drawn from normally distributed populations with equal (population) standard deviations. Just as one reflexively asks about randomization, blinding, and controls when evaluating a study design, it should become second-nature to ask about normality and equal variances when preparing to use Student's t test.[6]" As such, the underlying population parameters are crucial to know prior to using small samples in a t test.

Lastly, Dr. Dallal warns, "What should be done if the conditions for the validity of Student's t test are violated? The best approach is to transform the data to a scale in which the conditions are satisfied. This will almost always involve a logarithmic transformation. On rare occasions, a square root, inverse, or inverse square root might be used. For proportions, arcsin(sqrt(p)) or log(p/(1-p)) might be used. If no satisfactory transformation can be found, a nonparametric test such as the median test or the Wilcoxon-Mann-Whitney test might be used.[7]" What this means for anyone analyzing data, if the underlying assumptions of a test are violated, the test results are worthless.

From this material, it is obvious that to use a t statistic, the data must meet certain, strict requirements, not unlike that which is true for the Mann-Whitney U-test. The population must be normally distributed and the single sample of sold properties must be representative of the population. The good thing about assessment data is that we have the population of properties— every parcel of taxable residential property should be in the assessor's database. As such, we can use Shapiro-Wilk and/or Kolmogorov-Smirnov to verify that the population is normally distributed. We do not have to assume anything about the population's parameters, we do not have to repeat sample the data. Instead, we can calculate the parameters directly and directly check for normality in the population. To invoke the normality assumption from a single, non-randomly collected data set of a minimum size of thirty is not a valid statistical process.

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[3] From Mathematics Professor Dr. Keith Calkin's website,
http://www.andrews.edu/~calkins/math/webtexts/prod13.htm
[4] Dr. Dallal is credited with fine-tuning the Lilliefors' Significance to the Kolmogorov-Smirnov test.
[5] From Tufts University Statistics Professor Dr. Jerry Dallal's website,
http://www.tufts.edu/~gdallal/STUDENT.HTM
[6] Ibid.
[7] Ibid.

Table 1
Sold and Unsold Property in LaPorte County Test for Normality: 2005 Appraised Values

Tests of Normality

Twp Name		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	Df	Sig.	Statistic	df	Sig.
05_06_Total	CASS	.061	572	.000	.966	572	.000
	CENTER	.127	8568	.000			
	CLINTON	.047	418	.025	.975	418	.000
	COOLSPRI	.068	4219	.000	.937	4219	.000
	DEWEY	.048	360	.046	.962	360	.000
	GALENA	.137	614	.000	.556	614	.000
	HANNA	.106	330	.000	.920	330	.000
	HUDSON	.069	981	.000	.952	981	.000
	JOHNSON	.117	39	.195	.906	39	.003
	KANKAKEE	.095	1252	.000	.945	1252	.000
	LINCOLN	.091	962	.000	.930	962	.000
	MICHIGAN	.229	10829	.000			
	NEW DURH	.051	1113	.000	.974	1113	.000
	NOBLE	.078	511	.000	.961	511	.000
	PLEASANT	.071	1110	.000	.889	1110	.000
	PRAIRIE	.100	32	.200[*]	.961	32	.289
	SCIPIO	.088	1384	.000	.932	1384	.000
	SPRINGFI	.046	1297	.000	.938	1297	.000
	UNION	.105	790	.000	.925	790	.000
	WASHINGT	.068	422	.000	.972	422	.000
	WILLS	.085	487	.000	.932	487	.000

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

Table 2
Sold and Unsold Property in LaPorte County Test for Normality: 2006 Appraised Values

Tests of Normality

	Twp Name	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
06_07_Total	CASS	.056	572	.000	.964	572	.000
	CENTER	.129	8568	.000			
	CLINTON	.062	418	.001	.966	418	.000
	COOLSPRI	.075	4219	.000	.935	4219	.000
	DEWEY	.083	360	.000	.962	360	.000
	GALENA	.114	614	.000	.598	614	.000
	HANNA	.098	330	.000	.930	330	.000
	HUDSON	.057	981	.000	.956	981	.000
	JOHNSON	.117	39	.193	.914	39	.006
	KANKAKEE	.094	1252	.000	.933	1252	.000
	LINCOLN	.065	962	.000	.956	962	.000
	MICHIGAN	.253	10829	.000			
	NEW DURH	.042	1113	.000	.977	1113	.000
	NOBLE	.066	511	.000	.972	511	.000
	PLEASANT	.077	1110	.000	.885	1110	.000
	PRAIRIE	.117	32	.200[*]	.959	32	.266
	SCIPIO	.084	1384	.000	.934	1384	.000
	SPRINGFI	.141	1297	.000	.827	1297	.000
	UNION	.156	790	.000	.555	790	.000
	WASHINGT	.058	422	.002	.974	422	.000
	WILLS	.066	487	.000	.959	487	.000

a. Lilliefors Significance Correction

*. This is a lower bound of the true significance.

As can be seen in Tables 1 and 2 above, all townships' data, with the exception of Johnson and Prairie Townships, fail the normality test. Johnson fails both the Kolmogorov-Smirnov and the Shapiro-Wilk tests, and Prairie Township fails just the Kolmogorov-Smirnov test. Since the data are not normally distributed (with the exception of these two small Townships, to compare a student t test with critical t values (or z values since we know the population variance and standard deviation), is not a proper comparison.

Regarding my dissertation, the findings were that sold properties' sample characteristics were different from their equivalent population parameters. As such, I created a Mahalanobis Distance-based weighting technique to correct the sample so that it would be representative of the population. In doing so, I was able to improve the hedonic modeling process that could be employed by assessors. Because the sold property samples were not randomly drawn from the population of all properties and they typically had multivariate distributional differences when compared to the overall population of assessor data, I was able to improve the efficiency of traditional ordinary least squares (OLS) regression models, and my inverse-distance weighted estimators were the Minimum Variance Unbiased Estimators (MVUE) for the assessment data in my dissertation. OLS was found to not be MVUE because the estimators' variances were less efficient. In Dr. Schwab's Analysis, I see no reference to how he verifies that the sample is truly representative of the population or that he verified that the data are normally distributed so that his t test are valid indicators of any real difference in treatment.

Item #3: In a recent paper, Zimmerman[8] studies the effects of sample sizes and distributional shapes on Mann-Whitney test results. In that paper, he uses "extreme" differences in two groups as being in the ratio of 3 to 1. The analogy for a sales chasing study would be that there are only three times as many unsold properties as sold properties in a study. That will almost never happen and is probably closer to 10 to 1. In Zimmerman's "extreme" cases, the likelihood of making a Type I error are as high as 12-15% greater when the variance (shape) differs between groups and one group exceeds the other in number by a 3 to 1 ratio. In addition, as the variance increases between groups and the difference in the number of data points between groups increases, the Type I error probability increases. Dr. Zimmerman has extensively researched this issue and has published numerous papers discussing the limitations of nonparametric tests, including the proper use of Mann-Whitney.

Item #4: Dr. Schwab states that "A random variable is a real-valued function of the experimental outcome." What experiment takes place when I am given a sale of property? There were no controls in place, there were no means to properly design the data collection process to ensure a random process (such as invoking a random number generator to chose which house sells). Since I did not conduct an experiment to obtain the sold property observation (nor did I randomly select observations at random from the universe of sold properties—which could be considered an experiment), my statement that sold properties are not a "random variable" is correct. There is no experiment conducted, no random sampling conducted, so there is no random variable. Additionally, no where in appraisal theory is there reference to sales of property as random occurrences or events.

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[8] D.W. Zimmerman, 1996. Some Properties of Preliminary Tests of Equality of Variances in the Two-Sample Location Problem (1996). *Journal of General Psychology, 123*, 217-231.

Item #5: Dr. Schwab also states that "Two events are independent if the occurrence of one does not affect the occurrence or provide information about the occurrence of the other." I agree with this statement because statistical independence exists when the Probability of B given A is the Probability of B, or in statistics lingo,

$$P(B|A) = P(B)$$

This is exactly what we get when a property sells (it didn't not sell). I did not intend to use the phrase "statistical independence". Rather, I was explaining that there is complete predictability to be in the unsold group if a property does not exist in the sold group (hence, the binary outcome reference).

Graphs of Normal Probability Plots for LaPorte County

If the data are normally distributed, the P-P plots will follow a straight line (at a 45-degree angle). Any departure from this 45-degree line visually indicates the data are not normally distributed. As can be seen below, none of the data sets "fits" well with the 45-degree line because the data—sold, unsold, and all—are not normally distributed for either the 2005 or 2006 assessment years and parametric tests cannot be conducted on these data.
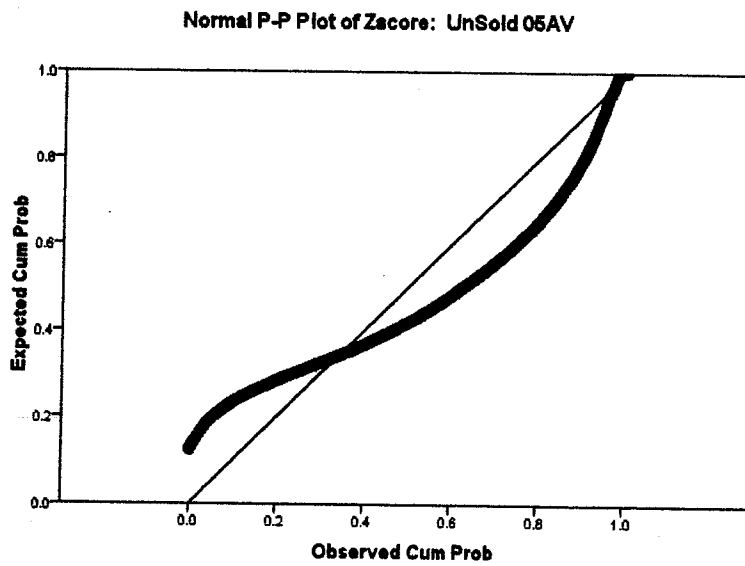
Graph 1:
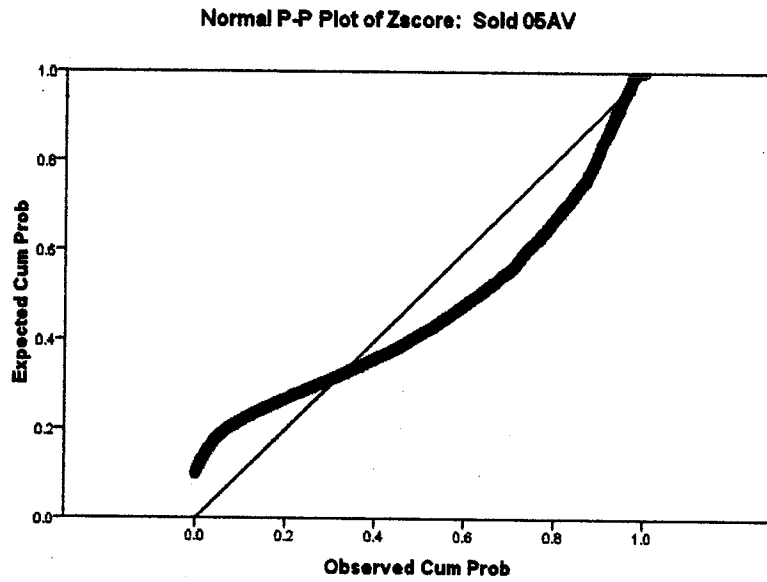### LaPorte County: All Data, 2005 pay 2006

Normal P-P Plot of Zscore: 05_06_Total

8
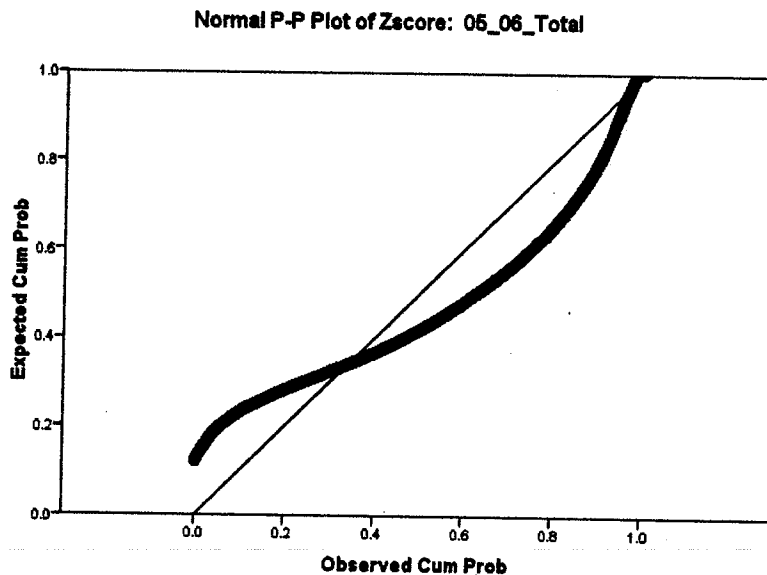
Graph 2:
LaPorte County: All Data, 2006 pay 2007

Normal P-P Plot of Zscore: 06_07_Total
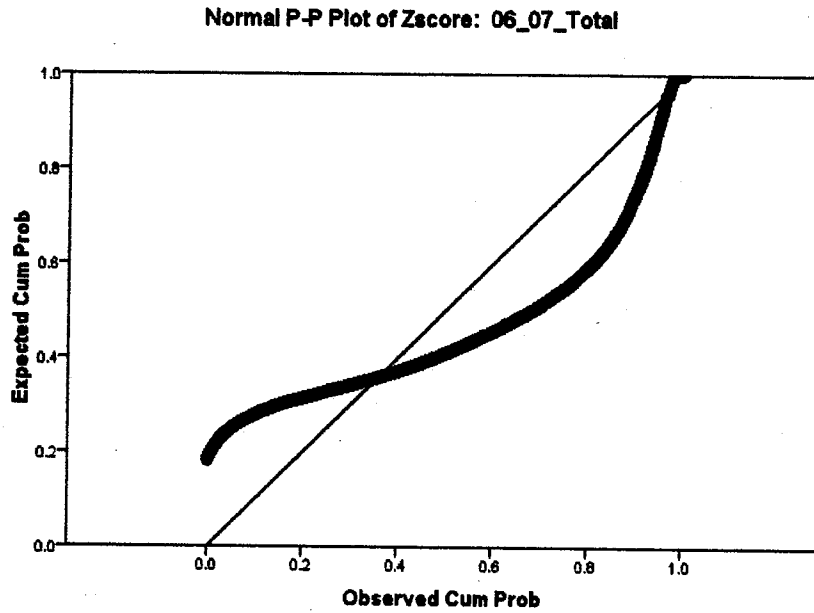
Graph 3:
LaPorte County: Unsold Data, 2005 pay 2006

Normal P-P Plot of Zscore: UnSold 05AV

Graph 4:
LaPorte County: Sold Data, 2005 pay 2006

Normal P-P Plot of Zscore: Sold 05AV

Graph 5:
LaPorte County: Unsold Data, 2006 pay 2007

Normal P-P Plot of Zscore: UnSold 06AV

10
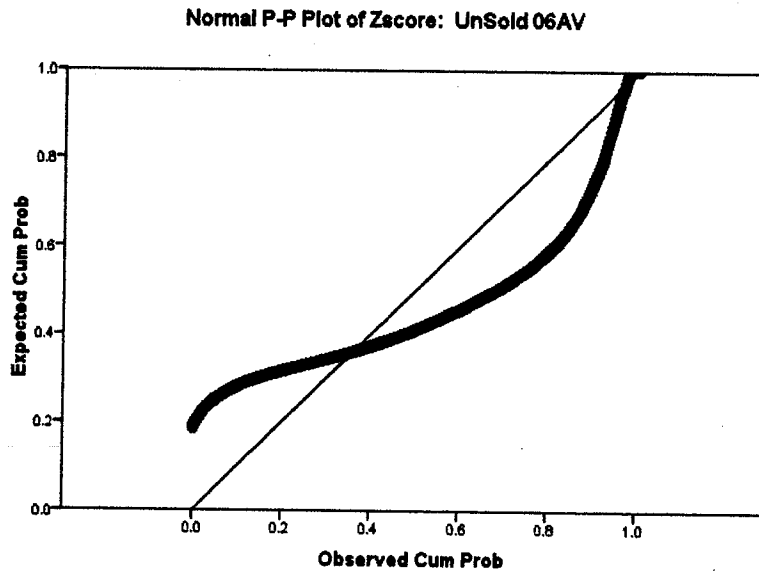
Graph 6:

LaPorte County: Sold Data, 2006 pay 2007

Normal P-P Plot of Zscore: Sold 06AV
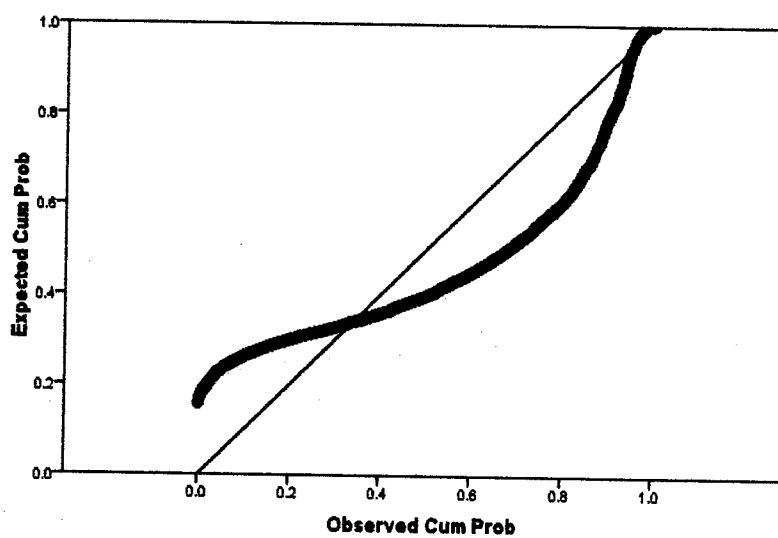
An Analysis of the April 10, 2008 DLGF Sales Chasing Study

In the first full paragraph on page 2 of 3 of the letter from Commissioner Cheryl A. W. Musgrave to Ms. Carol McDaniel, Mr. Shaw Friedman and Mr. Thomas Atherton dated April 10, 2008, it is stated, "The Department's Mann-Whitney test revealed the likelihood that sold and unsold improved residential parcels were not treated equally in nine (9) of the nineteen (19) tested townships in LaPorte County." The letter refers to the 1999 IAAO Standard on Ratio Studies (IAAO Standard) as the source for using Mann-Whitney as a means to determine if horizontal equity exists between groups and to "ensure that sold and unsold parcels are treated equally". Although the Department is abiding by the IAAO Standard on this matter to use the Mann-Whitney test, I am concerned that the Department does not fully comprehend the limits and the intended uses of the Mann-Whitney test.

Dr. David Schwab also wrote a memorandum supporting the April 10, 2008 letter from Commissioner Musgrave. In the third paragraph on page 2 of 6 in the Memorandum to LaPorte County Assessor, Shaw Friedman, and Thomas Atherton from David Schwab dated April 10, 2008, Dr. Schwab states (regarding the Mann-Whitney test), "It is a non-parametric test, meaning that it gives valid results regardless of the underlying distribution of data, and it is a comparatively low power test, meaning that it overlooks subtle differences which more sensitive tests might pick up on. It is certainly an appropriate test to use in this situation." Peer-reviewed statistical literature on this matter strongly and overwhelmingly disagrees with the statement that Mann-Whitney gives valid results "regardless of the underlying distribution of data". In the public hearing on May 15, 2008, Dr. Hamilton explained that distributional differences can cause Type I errors, and his written materials found in Binder 2 of Appendix B of the LaPorte County Assessor's Materials presented at the May 15 open public hearing support his statements on this matter opposing "regardless of the underlying distribution of data".

In the right circumstances, the Mann-Whitney test is undoubtedly an appropriate test to use to verify that two groups of data have differences between them. Those differences could be an indicator of horizontal inequity between sold and unsold parcels—differences in central tendency—provided that other dimensions in the data—shape dimensions—are similar. All that the results of a significant Mann-Whitney test tell us are that there are differences between two groups of data coming from the same population. Those differences can be from any one (or combination of) of the first four moments of a distribution of data which is explained next.

If a large enough sample of data is randomly chosen from a population, then the likelihood that the sample will have the same distributional characteristics as the population is very high. They should have the same variance, skew and kurtosis which—taken together—indicate they should have the same "distributional shape". The last item to test would be for central tendency (mean or median). This is exactly what we see in the Central Limit Theorem. Given the same distributional shape in the data, but different central tendencies of the data, yields a significant Mann-Whitney test for differences in typical treatment and a high likelihood of sales chasing.

It is at this point where the Department Study deviates from the intended use of the Mann-Whitney test. As stated above, a significant Mann-Whitney test indicates "differences" in data sets. Those differences can come from any one of the four moments in a dataset's distribution:

1. Central Tendency (zero, or difference between observed means)

2. Variance (or standard deviation)
3. Skew (long tails to the right or left)
4. Kurtosis ("fat" tails and "flat" peaks)

If we randomly select observations from a population, moments 1, 2, 3, and 4 should be statistically insignificant between the sample and the population. If we selectively choose observations from a population or they are given to us from a non-random selection process, then we do not know if any of the moments of the distributions are similar.

The Mann-Whitney test can detect any difference in any pairs of the four moments. So, if moments 1, 3, and 4 are similar between groups, but moment 2 (variance) is different, Mann-Whitney will yield a significant result, even though there is no difference in the levels of assessed values (the central tendencies—means or medians—of sold and unsold properties). You can repeat this process of choosing one, two or three moments in the distributions that are not similar (except for central tendency) to see that there are numerous potential outcomes for finding significant Mann-Whitney tests that have nothing to do with central tendency. As such, to use Mann-Whitney as a test for differences in central tendency, you must first verify that the data sets have the same distribution, or you could commit a Type I error. If sales data were truly random events, then one might forego the shape test, but since properties' sales data are not random, it is necessary to validate the shape test (variance, skew and kurtosis) of sold and unsold data prior to running Mann-Whitney.

Another issue with the Mann-Whitney test is that when the two groups being tested are significantly different in size, the Mann-Whitney test is exaggerated. That too could cause you to commit a Type I error. Therefore, to ensure that the Mann-Whitney test is properly conducted for "sales chasing", one must verify that the data sets have statistically similar variance, skewness and kurtosis. If one overlooks this first step, one can commit a Type I error and claim a difference in central tendency when that difference does not exist. The next step is to see how close (in number) two groups are to each other. The problem of two groups being significantly different in size (i.e., one group having very small numbers of observations) is that it is very difficult—if not impossible—to accurately test for differences in moments 2, 3, and 4 of a distribution, and the likelihood of committing a Type I error increases drastically.

Zimmerman[9] studies the effects of sample sizes and distributional shapes on Mann-Whitney test results. In that paper, he uses "extreme" differences in two groups as being in the ratio of 3 to 1. The analogy for a sales chasing study would be that there are only three times as many unsold properties as sold properties in a study. That will almost never happen and is probably closer to 10 to 1. In Zimmerman's "extreme" cases, the likelihood of making a Type I error are as high as 12-15% greater when the variance (shape) differs between groups and one group exceeds the other in number by a 3 to 1 ratio. In addition, as the variance increases between groups and the difference in the number of data points between groups increases, the Type I error probability increases. Zimmerman did not even model a situation where one group was 9 times as great as the smaller group because Mann-Whitney is not really intended for such great differences in group sizes.

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[9] D.W. Zimmerman, 1996. Some Properties of Preliminary Tests of Equality of Variances in the Two-Sample Location Problem (1996). *Journal of General Psychology, 123,* 217-231.

Statement on the Proper Use of Mann-Whitney U-tests

## A Summary of Prerequisite and Necessary Data Conditions For Using Mann-Whitney U-tests in Sales Ratio Studies

Prepared For:

LaPorte County, Indiana, Assessor
Indiana Department of Local Government Finance
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May 20, 2008
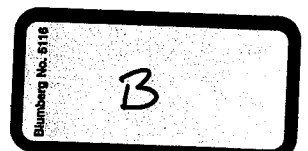
Overview of this Statement on the Proper Use of Mann-Whitney U-tests

Notwithstanding the comment by Dr. Schwab regarding Simpson's Paradox (which I will address later) on the matter of the Mann-Whitney U-test at the open public hearing on a pending/potential reassessment order in LaPorte County, Indiana, on the evening of May 15, 2008, I have prepared this statement to explain in detail why the Mann-Whitney test (a.k.a., the "Wilcoxon" test or the "Wilcoxon-Mann-Whitney" test) cannot be blindly and overtly applied to just any data. Based on literature published by IAAO and other reputable sources, it is apparent that a layman's understanding of nonparametric statistics might conclude that data are not subject to *any* distributional requirements. For the most part, nonparametric do not require a *specific* distribution, but some tests—including Mann-Whitney and Wilcoxon—do require that the data sets being compared to each other have a similar shape to their distribution to validate that the treatment between the two groups is similar. The treatment test variable is typically for central tendency, or simply the mean or median characteristic of the data. It is also known as the first moment of a data distribution.

What I stated on the evening of May 15th is that for a sales chasing argument to be statistically significant using the Mann-Whitney test, sold and unsold data must have the same distributional shape. This is the requisite first step in any Mann-Whitney test. *If* one determines the sold and unsold data sets do have the same distributional characteristics (i.e., shape), *and if* the Mann-Whitney statistic is significant, *then* one could argue that sales chasing has occurred. This two step procedure *is required* because the Mann-Whitney U-test will reject the null hypothesis that treatment is the same between two groups (sold and unsold properties have been assessed similarly) *if any* of the following conditions are true: 1) the means of the two groups are different; 2) the variances of the two groups are different; or 3) the skewness or kurtosis of the two groups are different.

If the variance, skewness and kurtosis are similar (which would indicate that the data sets have "similar shapes"), then a difference between sold and unsold properties' measures of central tendency—as shown through a significant U-test from Mann-Whitney—can be reasonably assumed to be caused by a treatment difference between the two groups. In layman's terms, there is a reasonable potential that sales chasing *might* have occurred. If the shapes of the data are not "similar", then the U-test could be significant because of skewness, kurtosis, or variance differences in the data, not just the central tendency measure (mean or median) of treatment between the groups.

Without first checking the underlying data distributions, one's Mann-Whitney test could yield a false positive significance (this is what is known as a Type I error). In other words, sales chasing cannot be determined to exist in the groups. The Mann-Whitney test statistic would be significant due to distributional issues (variance, skewness and/or kurtosis) and not necessarily due to central tendency issues. Also, one might improperly conclude that sales chasing has occurred when the real source of the significant U-test is unrelated to sales chasing.

Regarding Simpson's Paradox

Someone might claim that my "choices" of which properties are included in the sold group is a lurking, or confounding variable that is causing the spurious results in the Mann-Whitney U-tests. Even if we assume that to be the case, there is no way to aggregate the sold and unsold data into a single group

and construct a Mann-Whitney test on a single group. Since there is no aggregate baseline from which to compare the "disaggregated" Mann-Whiney tests, there is no way to show the paradox.

Sales Chasing Studies

Another issue in sales ratio studies regarding the proper use of the WMW U-test is that the number of items in each of the two samples (sold and unsold properties) be approximately the same size. This does not mean that each group must be of exactly equal size, but the two groups must be fairly similar in count to accurately depict differences in the two groups. As the size of two samples in a WMW U-test become less similar, their distributions become less similar, and the likelihood of making a Type I error increases. In plain English, the U-test indicates that two samples are treated differently when in fact the two samples are treated similarly. For a detailed discussion on the proper use of a Mann-Whitney test, please see Zimmerman (1996)[1], Marascuilo and Serrlin (1988)[2], Maxwell and Delaney (1990)[3], and Zimmerman and Zumbo (1993)[4].

Yet another issue that must be addressed regards randomness. Mann-Whitney tests typically assume that the data in the two groups are random events or variables. Sales of property are not considered random events because the unsold properties are a simply a function of the sold properties. Either a particular property sells or it doesn't—which is a binary outcome—and the sold and unsold properties are therefore dependent on each other (predictable and not random).

As I stated in the open public hearing on May 15, 2008, I do not agree with the findings of the Denne report. Additionally, now that I have looked at the April 10th memorandum from Dr. Schwab regarding horizontal equity between sold and unsold parcels in LaPorte County, I can say that I do not support his contention that sales chasing exists in the LaPorte County property assessments that would warrant a reassessment of property in the county. The statement by Dr. Schwab on page 2 of 6 of his memorandum referring to the Mann-Whitney test, "It is a non-parametric test, meaning that it gives valid results regardless of the underlying distribution of data", is simply wrong. Extensive peer-reviewed literature has been written on this matter, and that literature overwhelmingly states that Mann-Whitney tests for more than simply differences in central tendency, and that similar data distributional shapes are needed to test for differences in central tendency between two groups.

Dr. Schwab's test results for sales chasing fail to follow the proper two-stage procedure needed to ensure that a Type I error is not made. Because Dr. Schwab did not conduct the proper, prior analysis of data distributional similarity between sold and unsold property groups, his conclusions on the matter are also invalid.

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[1] D.W. Zimmerman. Some Properties of Preliminary Tests of Equality of Variances in the Two-Sample Location Problem. *Journal of General Psychology*, 1996, 123(3), pp. 217-231.
[2] L.A. Marascuilo and R.C. Serlin. *Statistical Methods for the Social and Behavioral Sciences*, New York: Freeman, 1988.
[3] S.E. Maxwell and H.D. Delaney. *Designing Experiments and Analyzing Data: A Model Comparison Perspective*, Belmont, CA: Wadsworth, 1990.
[4] D.W. Zimmerman and B.D. Zumbo. *Rank Transformations and the Power of the student t test and the Welch's t` test for Non-normal Populations with Unequal Variances.* Canadian Journal of Experimental Psychology, 1993, 47, pp. 523-39.

Summary of Pertinent Issues Regarding the Denne and DLGF Reports on LaPorte County

Distributions of 2005 (value year 1999) and 2006 (value year 2005) appraised values, by Township and by County, do not have the same variance, skewness, and kurtosis (i.e., distributional shape) for the sold and unsold groupings of properties for the vase majority of property in LaPorte County. As such, the two groups of sold and unsold property cannot be compared using the Mann-Whitney U-test as performed in the Denne Study due to the distributional dependencies required by the Mann-Whitney U-test.

Another issue about differences in appraised values is raised by Dr. Schwab in his Memorandum to the LaPorte County Assessor, Mr. Friedman, and Mr. Atherton dated April 10, 2008. On page 2 of 6 of that Memorandum Dr. Schwab refers to changes in assessed values between 2005 and 2006. It is my understanding that property was assessed in 1999 and in 2005. Between 1999 and 2005, properties were not reassessed, but rather assessed values were "time-trended" on a series of indices (time, neighborhood, grade, condition, etc.). As such, the underlying distributions of property values will be significantly different between the 2005 values (based on trended assessments from 1999) and new values that appear on the 2006 statements. To state that "Large differences within a township indicate that sold and unsold parcels may have been assessed differently" is a guess at market conditions over the past 6 years. Certain types of properties are more desirable and marketable than others and their market value estimates will change at different rates over time. If those property types which are actively transacting happen to sell, then one would expect a positive change in value relative to less desirable properties. An example over this time period would be lakefront and condo/townhouse properties. Those two groups had significantly higher appreciation rates than did inner-city properties. They also had significantly higher transaction rates. Therefore, these two groups of properties—that are selling at higher rates and for higher prices each year—should experience higher assessed value changes (if the assessor is to value them in their current use and at current market value). If the assessor did NOT value these more desirable properties at their current use value, then the assessor would not be conducting her duties in accordance with statute. To simply show that there are differences in sold properties' and unsold properties' and say that is indicative of "sales chasing" shows a lack of understanding property price markets and their inherent dynamics.

Explicit necessary conditions regarding the Mann-Whitney test must be met before using the statistic to test for differences. Two sources support this claim. First, "The Mann-Whitney test requires independent samples from populations with equal variances, but the populations need not be normal." (*Applied Statistics in Business and Economics*, David P. Doane and Lori E. Seward, McGraw-Hill Higher Education, ISBN: 13:978-0-07-296696-1, page 706). Second, "(The Mann-Whitney U-test is a) nonparametric test for detecting differences between two location parameters based on the analysis of two independent samples (from a single population) (*Pocket Dictionary of Statistics*, Hardeo Sahai and Anwer Khurshid, Hill Higher Education, ISBN: 0-07-251693-3).

These two sources state that samples from the two groups tested require equal variances and the groups must be independent samples from a single population, where that single population has only one distributional shape (its own). We also know that sold and unsold properties are not independent data because one condition (sold) precludes the other condition (unsold). Comparisons of skewness and

kurtosis of Township data show that the sold and unsold data in LaPorte County do differ in distributional shape and therefore cannot be compared using Mann-Whitney.

Several peer-reviewed and authoritative articles and other works explain the proper use and limits of tests of uniformity for the Mann-Whitney U-test are summarized here. In "Invalidation of Parametric and Nonparametric Statistical Tests by Concurrent Violation of Two Assumptions. *Journal of Experimental Education, 67,* 55-68, 1998, Zimmerman states that, "To provide counterexamples to some commonly held generalizations about the benefits of nonparametric tests, the author concurrently violated in a simulation study two assumptions of parametric statistical significance tests—normality and homogeneity of variance. For various combinations of non-normal distribution shapes and degrees of variance heterogeneity, the Type I error probability of a nonparametric rank test, the Wilcoxon-Mann-Whitney test, was found to be biased to a far greater extent than that of its parametric counterpart, the Student *t* test." Here the author explains that when the data used in a Mann-Whitney test have different shapes and heteroskedasticity, Type I errors are possible.

In "Some Properties of Preliminary Tests of Equality of Variances in the Two-Sample Location Problem (1996). *Journal of General Psychology, 123,* 217-231, 1996, Zimmerman states that, "A simulation study was conducted to examine probabilities of Type I errors of the two-sample Student *t* test, the Wilcoxon-Mann-Whitney test, and the Welch separate-variances *t* test under violation of homogeneity of variance. Two-stage procedures in which the choice of a significance test in the second stage is determined by the outcome of a preliminary test of equality of variances in the first stage were also examined. Type I error rates of both the *t* test and the Wilcoxon test were severely biased by unequal population variances combined with unequal sample sizes." Again, homoskedasticity and similar shapes are needed to properly conduct a Mann-Whitney test.

In "A Warning about the Large-Sample Wilcoxon-Mann-Whitney Test. *Understanding Statistics, 2,* 267-280, 2003, Zimmerman states that, "It is known that the Wilcoxon-Mann-Whitney test is strongly influenced by unequal variances of treatment groups combined with unequal sample sizes." Zimmerman starts this paper with the phrase, "It is known" to describe problems of unequal variances and sample size differences when using Mann-Whitney.

In "Two Separate Effects of Variance Heterogeneity on the Validity and Power of Significance Tests of Location, *Statistical Methodology, 3,* 341-394, 2006, Zimmerman states that, "Heterogeneity of variances of treatment groups influences the validity and power of significance tests of location in two distinct ways. First, if sample sizes are unequal, the Type I error rate and power are depressed if a larger variance is associated with a larger sample size, and elevated if a larger variance is associated with a smaller sample size. This well-established effect, which occurs in *t* and *F* tests, and to a lesser degree in nonparametric rank tests, results from unequal contributions of pooled estimates of error variance in the computation of test statistics. It is observed in samples from normal distributions, as well as non-normal distributions of various shapes. Second, transformation of scores from skewed distributions with unequal variances to ranks produces differences in the means of the ranks assigned to the respective groups, even if the means of the initial groups are equal, and a subsequent inflation of Type I error rates and power." Zimmerman also states, "Because of interaction of these separate effects, the validity and power of both parametric and nonparametric tests performed on samples of any size from unknown distributions with possibly unequal variances can be distorted in unpredictable

ways." It is imperative that sample sizes are similar, and the data distributions are of similar shape to properly conduct Mann-Whitney tests.

Professor G. David Garson of North Carolina State University states in his course outline for Quantitative Research in Public Administration[5] in the section titled, "Tests for Two Independent Samples: Mann-Whitney U, Wald-Wolfowitz Runs, Kolmogorov-Smirnov Z, & Moses Extreme Reactions Tests", the assumptions for all non-parametric tests include:

1. Random sampling is assumed, as in all significance tests.
2. Independent samples are assumed. The two samples should not be correlated (ex., not before-after studies, panel studies, or matched-pairs studies).
3. Data distribution. The tests in this section are non-parametric, not assuming the normal distribution. The Mann-Whitney U test, but not the Wald-Wolfowitz or Kolmogorov-Smirnov tests, also assumes that the distribution in each sample is similar in shape. If the researcher can assume a normal distribution, t-tests are preferable since they can detect true differences between groups using a lower sample size than nonparametric tests in this section. Put another way, t-tests have greater power. Use independent, random samples. The Mann-Whitney U test requires that the two tested samples be similar in shape.
4. Data level. All the tests in this section assume ordinal data or higher.
5. Data pairs. When the proportion of pairs which are tied is high, none of the tests in this section should be used.
6. Sample size. For the Mann-Whitney, Wald-Wolfowitz, and Kolmogorov-Smirnov tests, sample size must be the same in the two samples so that each has the same range of rank values, from 1 to n. Small deviations from this requirement usually do not affect substantive conclusions. Populations, of course, need not be of equal size.

What Professor Garson is saying in terms of a sales chasing study is that:
1. Property sales are not a random event and their sampling representation of a population's true parameters cannot be assumed.
2. Properties in a Sales Chasing study are not independent: a property sells (1) or it does not sell (o)—this is a binary, conditional relationship and creates a dependency between the two samples.
3. Non-parametric does not mean "distribution free". Twice Professor Garson emphasizes that the two samples be "similar in shape". This can be done by looking at the data's variance, skewness and kurtosis. If two distributions have similar shapes (their variance, skewness and kurtosis are similar) then, and only then, can Mann-Whitney be used as a proper test statistic. If sales were truly a random event, then the variance, skewness and kurtosis of the two samples would most likely be similar.
4. Rarely would it be the case where half (or even nearly half) of the data in any jurisdiction would sell in any given year. To claim that a county's assessment data for a given year is a "Population" is a weak claim in that it is a single year's data in a stream of years' data sets, and market forces for real estate transactions extend beyond the bounds of any one county to adjoining counties. Therefore, the sample sizes of sold and unsold should be similar. This is simply not the case in any Property Class, Neighborhood, Township or grouping thereof.

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[5] From: http://www2.chass.ncsu.edu/garson/pa765/mann.htm

Random Sampling and Size Differences in the WMW Test: A Case of Simpson's Paradox?

Below are the four examples which I explained in the open public hearing in LaPorte County, Indiana, on May 15, 2008. I have replicated them here for convenience. At one point in the hearing, Dr. Schwab brought up Simpson's Paradox. At the time, I was not sure exactly why he did, but I can only assume he did because he was trying to infer that the examples I referred to contained spurious results and were simply examples of Simpson's Paradox (a problem of aggregating data where the aggregate outcome gives results different from the disaggregated equivalent outcomes). I will briefly explain Simpson's Paradox and then show how the results of my four examples are not examples of Simpson's Paradox. I do contend, however, that a very good example of Simpson's Paradox is found in Mr. Denne's time-trended adjusted sales prices (an aggregated outcome). The results of over-aggregation created problems in LaPorte County with respect to the median A/S ratios, confidence intervals around those ratios, CODs and PRDs.

Simpson's Paradox

Simpson's paradox is the statistical paradox where the successful test of groups is reversed when the groups are combined. In the marketplace for real estate, the observed action of properties selling is neither a combinatory function, nor is it causally determined—properties sell because a buyer and seller agree to a set of conditions pursuant to a mutually agreeable set of circumstances amenable to both parties and only after the seller decides to market her property. This process is neither a random event nor is it completely predictable. In the case of testing for similarity between sold and unsold property groups appraised values, one certainty that we can state is true is that being a "sold" property precludes that property from being "unsold".

Simpson's Paradox requires a systematic disaggregation of an aggregate set of data. Disaggregation occurs because the researcher discovers a confounding or "lurking" variable that allows a meaningful separation into sub-groups. Sales of property are non-random facts of the marketplace, and the outcome creates two groups of properties—sold and unsold. This fact is neither "lurking" nor confounding, it is apparent and known. There are also no lurking variables causing properties to sell.

In the examples below, all of the appraisals are considered excellent which means there is no sale chasing present in the data. Someone might claim that my "choices" of which properties are included in the sold group is a lurking, or confounding variable that is causing the spurious results in the Mann-Whitney U-tests. Even if we assume that to be the case, there is no way to re-aggregate the data into a single group and construct a Mann-Whitney test on that single group. The Mann-Whitney test requires two groups to calculate the U-statistic, and a single, aggregative data set is required for the Simpson's Paradox comparison. Since there is no aggregate baseline from which to compare the Mann-Whiney tests, there is no Simpson's Paradox to be found.

The purpose of the examples below is to show that it is the distributions of the sold and unsold properties, when substantially different, that gives us conflicting results that are not due to sales chasing, but rather it is the differences in data distributions. The examples support the literature I cited

earlier which claim that the Mann-Whitney U-test will find differences in more than just the mean or median of a distribution, and that is why the sold and unsold data must have similar shapes.

EXAMPLE 1

In this example, I assume that 1001 properties exist in a "Township". The properties range in appraised value from $50,000 to $150,000 in $100 increments and those appraisals are perfect representations of the marketplace. In other words, the data are perfect. I also assume in this first example that 101 properties sell (roughly 10%). They also happen to be the first 101 data (the 101 lowest valued properties). The results for the WMW test are shown below:

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Appraised Value	1001	100000.00	28910.811	50000	150000
Sold100	1001	.10	.301	0	1

Mann-Whitney Test

Ranks

	Sold100	N	Mean Rank	Sum of Ranks
Appraised Value	0	900	551.50	496350.00
	1	101	51.00	5151.00
	Total	1001		

Test Statistics[a]

	Appraised Value
Mann-Whitney U	.000
Wilcoxon W	5151.000
Z	-16.497
Asymp. Sig. (2-tailed)	.000

a. Grouping Variable: Sold100

According to this Mann-Whitney test, "sales chasing" has occurred, even though in the construction of the example the data are "perfectly appraised" and no sales chasing exists.

EXAMPLE 2

In this example, the 100 properties which sell alternate (first, eleventh, twenty-first, thirty-first, etc. in ascending value) through the final property in the "Township". Again all the appraised values are correct, and in this example, the WMW test says there is no evidence of sales chasing.

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Appraised Value	1001	100000.00	28910.811	50000	150000
Sold 100 Alternate	1001	.10	.300	0	1

Mann-Whitney Test

Ranks

	Sold 100 Alternate	N	Mean Rank	Sum of Ranks
Appraised Value	0	901	500.56	451001.00
	1	100	505.00	50500.00
	Total	1001		

Test Statistics[a]

	Appraised Value
Mann-Whitney U	44650.000
Wilcoxon W	451001.000
Z	-.146
Asymp. Sig. (2-tailed)	.884

a. Grouping Variable: Sold 100 Alternate

This example of a small data set selling in a non-random manner causes us to question why if all the properties are properly valued that in one case "sales chasing" exists (Example 1) and in the other case "sales chasing" does not exist (Example 2)? The answer is not in the construction of the nonparametric statistic, but rather the fact that a non-random event caused the results. Sales of property are not random events and the distributions of the sold properties in the first case differ substantially from the distribution of the sold properties in the second case.

EXAMPLE 3

In this example, 501 properties sell (approximately 50%), but it is the first 501 which sell. The final 500 properties do not sell. The results from the Mann-Whitney test would indicate that "sales chasing" has occurred.

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Appraised Value	1001	100000.00	28910.811	50000	150000
Sold500	1001	.50	.500	0	1

Mann-Whitney Test

Ranks

	Sold500	N	Mean Rank	Sum of Ranks
Appraised Value	0	500	751.50	375750.00
	1	501	251.00	125751.00
	Total	1001		

Test Statistics[a]

	Appraised Value
Mann-Whitney U	.000
Wilcoxon W	125751.000
Z	-27.386
Asymp. Sig. (2-tailed)	.000

a. Grouping Variable: Sold500

The Z-statistic is very large in this case. Sales chasing must have occurred even though the data are constructed as "perfect".

EXAMPLE 4

In this example, the 501 properties which sell alternate (first, third, fifth, seventh, etc.) through the final property in the "Township". Again all the appraised values are correct, and in this example, the WMW test says there is no evidence of sales chasing.

NPar Tests

Descriptive Statistics

	N	Mean	Std. Deviation	Minimum	Maximum
Appraised Value	1001	100000.00	28910.811	50000	150000
Sold 500Alternate	1001	.50	.500	0	1

Mann-Whitney Test

Ranks

	Sold 500Alternate	N	Mean Rank	Sum of Ranks
Appraised Value	0	501	501.00	251001.00
	1	500	501.00	250500.00
	Total	1001		

Test Statistics[a]

	Appraised Value
Mann-Whitney U	125250.000
Wilcoxon W	251001.000
Z	.000
Asymp. Sig. (2-tailed)	1.000

a. Grouping Variable: Sold 500Alternate

As we can see here, an equal-sized data set (approximately 50% sell and 50% don't) with properties selling in a non-random manner causes us to question why if all the properties are properly valued that in once case "sales chasing" exists (Example 3) and in the other case "sales chasing" does not exist (Example 4)? Again, the answer is not in the construction of the nonparametric statistic, but rather the fact that a non-random event caused the results. Again, sales of property are not random events and the distributions of the sold properties in the first case differ substantially from the distribution of the sold properties in the second case. This is why we must first be certain that the distributions of the data are sufficiently similar before conducting the Mann-Whitney test.

DLGF decision may come next week

■ Reassessment for county topic of meeting; most speak in favor.

By Jason Miller
The News-Dispatch

LA PORTE — The Indiana Department of Local Government Finance commissioner told The News-Dispatch she hopes to know Thursday if the board will issue a second reassessment for the county.

After a nearly three-hour hearing at the La Porte County Complex, Cheryl Musgrave said DLGF have about a week's worth of discussion ahead of them.

"Depending on what comes up, it might be Friday morning," she said. "But the way it looks now, I think we'll have a decision by some time on Thursday."

During the meeting, a majority of speakers voiced opinions in favor of a reassessment.

The DLGF's decision will likely exacerbate issues between the county

"I think we had some strong testimony that the study they used wasn't valid."

shaw friedman, speaking of dlgf

DLGF

and the department, which County Attorney Shaw Friedman said a new study shows the county's reassessment would cost $2 million and, in response, Nexus Group, assigned valued over the county's contract with Nexus again uses to properties illegally.

The study, Musgrave said, shows Nexus manipulated cost data and properties and engaged in sales chasing — the assessment of recently sold properties at a level different than on unsold properties.

DLGF officials said the practice is aimed at simply arriving at a bottom line overall value which would set the county's assessed valuation and tax rate.

Because of the result — found after officials read a newspaper quote in which times that Musgrave and the DLGF recuse themselves from the proceedings because they've treated the county unfairly.

"I think we had some strong testimony that the study they used wasn't valid," Friedman said, after Tom Hamilton, an assessment expert, testified the DLGF's reference study was not valid. "At no time prior to tonight was this listed as a reason for this hearing. We have a court decision stating that contract is valid."

A state court last year affirmed the contract.

Musgrave said she wouldn't recuse herself

He demanded several from the proceedings and said her group would take into consideration everything they'd heard Thursday, including what she called an "overwhelming majority" of people in favor of reassessment.

Musgrave kept a running tally of speakers' opinions and said of 27 total speakers, 20 people and one elected official approved of a reassessment while three elected officials and two citizens opposed it.

One man asked Musgrave to fix a problem with water in his ditch.

□

Contact reporter Jason Miller at jmiller@thenews-dispatch.com.

Section

Friday
May 16,
2008

South Bend
Tribune

Local

■ IN SATURDAY'S TRIBUNE
State child protectors verbal abuse report

◄ ISSUES
Spirits high as Buchanan 6-year-old
battles disease. B3

Voice of the People ... B4   ⋮   Michiana Point of View ... B5   ⋈

Briefs

INDIANAPOLIS

Appeals court affirms
sentences for Finley

The Indiana Court of Appeals on Thursday affirmed the sentences of Jeffrey Finley, who is serving 55 years in prison for the murder of South Bend Cpl. Scott Severns and 10 years for attempted robbery.

Finley had appealed his sentences on the grounds that his age, lack of criminal record and expression of remorse did not receive due weight as mitigating factors. He also argued that his sentences should have been imposed concurrently.

But the court, in a decision posted on the Indiana Court of Appeals Web site, found the sentences appropriate.

Finley was sentenced Sept. 26 in St. Joseph Superior Court.

SOUTH BEND

Accusations abound at hearing

■ State to determine
if LaPorte County
should redo 2006
reassessments.

By NANCY J. SULOK
Tribune Staff Writer

LAPORTE — County Attorney Shaw Friedman accused state officials of springing some unexpected evidence on him Thursday night during a hearing on whether the county's reassessment should be redone for 2006 property taxes, payable in 2007.

Cheryl Musgrave, commissioner of the Indiana Department of Local Government Finance, accused Friedman of springing a surprise expert witness on the board.

It was the latest round in a fight that's been going on for at least six months over whether major mistakes were made in property reassessments. If the DLGF concludes that the process was flawed, it could order the county, probably at great expense, to throw out last year's assessments and start the process over for all or parts of LaPorte County.

That could be done despite the fact that the DLGF earlier had approved the county's assessments, and the county, in fact, had billed residents for property taxes based on those approved assessments.

Before testimony began, Friedman objected to a Power-Point presentation that included a line about LaPorte County's contract with the Nexus Group being in violation of state law. LaPorte County hired

the Nexus Group to handle reassessments in the county.

The validity of the contract had not been brought up before, Friedman said. Further-more, added Nexus President Frank Kelly, the DLGF had approved the contract in 2004.

Tom Atherton, an Indianapolis attorney, outlined the assessment problems on behalf of his client, Michigan City businessman William Wendt. Wendt had commissioned a company to do an independent assessment, and it concluded that the Nexus methodology and results were flawed.

Atherton said the county's official assessment was so wrong that the county assessor, Carol McDaniel, should be removed from office. He said the Property Tax Assessment Board of Appeals, which hears property tax appeals, also is deficient.

During his response, Friedman repeatedly said that Musgrave had shown herself to be prejudiced in favor of the other side, and he demanded she should recuse herself from the hearing process.

The county's surprise witness was Thomas W. Hamilton, who teaches real estate at the University of St. Thomas in Minneapolis.

At McDaniel's request, Hamilton said, he did a study of the work done by consultant Robert C. Denne, who had been hired by Wendt to examine the county's assessments. Hamilton concluded that the methodology used by Denne was wrong, so "it is impossible for his conclusions to be considered valid."

Following the verbal dueling and accusations of wrongdoing by both sides, Musgrave opened up

the hearing to public comment.

Of the 27 who spoke, only a few spoke against having a reassessment done. The majority urged the DLGF to order a reassessment of the entire county.

Most of those who spoke said the assessed value of their properties had risen illogically. Efforts to appeal through the PTABOA has been a slow process, with many property owners saying they still are waiting for a hearing.

Some expressed fear that they or their neighbors can no long afford to keep their homes.

Musgrave said she will continue to take written testimony until Wednesday and would make a decision some time after that.

Friedman has pledged to sue if the state orders a reassessment.

THE News-Dispatch

CITY DOWNS MARQUETTE IN TENNIS SECTIONAL

See Sports, B1

Blumquist No. 0518

D

STATE OF INDIANA   IN LAPORTE SUPERIOR COURT NO. 2

COUNTY OF LAPORTE   MICHIGAN CITY, INDIANA

MICHAEL CONNOR, LINDA O'MAHONEY,
DONALD LAYELLE, JOHN T. MCKITRICK,
JOHN WILSON, JUDY CURITS, WILLIAM
WOZNEY, BRIGID MCKITRICK, MARY JANE
FERNANDEZ, KATHERINE BRENNAN,
BETTY FLYNN, HOWARD A. MASON,
SHARON STITCH, DAVID KAPLAW,
SUELLEN KELLEY-BERGERSON, JEROME
SLOMKA, JUDITH WOLFORD, MOLLIE
MCKITRICK, JOHN P. CONNOLLY, KAREN
V. RAFTER, JAMES KENSIK, KATHERINE A.
KELLEY, RITA FINK, JERRY MUCH,
THOMAS MARREN, JOSEPH WAICKUS,
GEORGE HENDAY, and TOM STROPKY,
NAMED PLAINTIFFS, taxpayers and residents
of LaPorte County, on behalf of themselves and
others similarly situated,
And MICHIGAN TOWNSHIP CITIZENS
FOR FAIR TAXES, INC. (an Indiana Not
For Profit Corporation),
       Plaintiffs,

   v.   Cause No. 46D02-0709-PL-129

CAROL MCDANIEL, individually and as
Assessor of LaPorte County, Indiana,
NEXUS GROUP, INCORPORATED, FRANK S.
KELLY, and JEFFREY WUENSCH,
       Defendants.

JUDGMENT FOR DEFENDANTS

  This cause of action came before the court for hearing on the separate Motions to

Dismiss filed by Defendant Carol McDaniel and Defendants Nexus Group, Frank Kelly,

and Jeffrey S. Wuensch, filed November 13 and 14, 2007, respectively, as well as the

related Motion to Strike by Defendants Nexus Group, Frank Kelly, and Jeffrey S.

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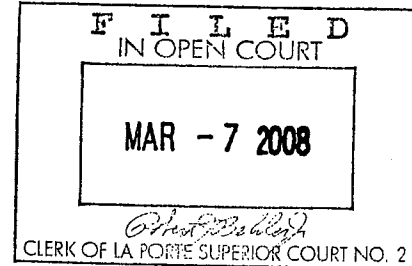
Wuensch on January 17, 2008, and the court having heard the arguments concerning the respective motions, having read and considered the pleadings in support of and in opposition to the motions, having had these matters under advisement and being duly advised in the premises, now issues and files its findings and conclusions of law:

1. This court has subject matter jurisdiction over that general class of proceedings to which this cause of action belongs.

2. Hearing was held the 17th day of January, 2008. Plaintiffs appeared by Counsel Bradley Adamsky, only. Defendant Carol McDaniel appeared in person and by counsel, Shaw Friedman. Defendants Nexus Group, Incorporated, Frank S. Kelly and Jeffrey S. Wuensch appeared by Counsel Carl J. Becker only.

MOTION TO STRIKE

3. The Motion to Strike filed by Defendants Nexus Group, Inc., Frank S. Kelly, and Jeffrey S. Wuensch was not filed within the twenty (20) day period provided by Trial Rule 12(F); accordingly, the Motion to Strike should be, and it is hereby, denied.

4. The oral motion of Defendant Nexus Group, Inc., Frank S. Kelly, and Jeffrey Wuensch raised in open court that if the Motion to Strike be denied, those defendants should be granted additional time to designate evidence, is also denied.

CONVERSION TO T.R. 56

5. Given the denial of the motion to strike the Exhibits attached to plaintiffs response to defendants Nexus Group, Frank S. Kelly, and Jeffrey Wuensch, as well as the fact that Defendant McDaniel has attached an affidavit of Robert Szilagyi and an "Official Opinion" of the Indiana Attorney General to her "Reply" to plaintiffs' response

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to her motion to dismiss, both motions to dismiss shall be treated as motions for summary judgment and adjudicated accordingly.

6. There is no genuine issue of material fact regarding the following outcome-dispositive matters.

7. Defendants are entitled to judgment as a matter of law for the following reasons:

a) plaintiffs may not utilize a declaratory judgment action to obtain the remedy of a declaration by this court "that all services provided by Nexus under Exhibit A [the Professional Services Agreement: Draft signed by LaPorte County's Board of Commissioners and Frank S. Kelly, and Jeffrey Wuensch of Nexus] are deemed null and void;" in requesting that relief, plaintiffs are seeking to circumvent their obligation to exhaust their administrative remedies and commence simultaneously, to cause this court to act in an area where it lacks subject matter jurisdiction.

b) plaintiffs' claims against all defendants that the contract between the LaPorte County Commissioners and Nexus executed in 2004, should be declared "illegal and void" and that "all services provided by Nexus under 'Exhibit A' [the contract]" should be declared null and void, are barred by the doctrine of laches. Since the execution of that contract in 2004, the contract has been the catalyst for services which have provided the basis for preparation of tax bills by county and township officials, the related certification of tax rates, and the approval and issuance of tax bills, all without challenge to the legality of the contract and/or its implementation. Extreme prejudice to the county and township assessors, as well as LaPorte County government and its taxpayers would result in the form of the huge financial cost should that work now be

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undone and the county and local government be required to repeat those massive exercises.

Concomitantly, laches and its companion defense of estoppel defeat plaintiffs' claims against Nexus Group, Incorporated, Kelley & Wuensch. The prejudice to those defendants is self-evident given its significant investment of time and services over the course of the past three years. Plaintiff's suggestion that the remedy for Nexus Group should be to simply file a cross-claim against LaPorte County to recover payment for their services ignores the costs of litigation Nexus Group would incur in that pursuit, as well as the delay attendant thereto in obtaining relief.

Notably, Plaintiff's suggestion that Nexus Group should sue the county for unjust enrichment compounds the prejudice to defendant McDaniel in her official capacity as the Assessor of LaPorte County. First, LaPorte County and its taxpayers would incur the costs of additional litigation expenses, and, second, any judgment that might be entered against LaPorte County for services rendered would be imposed for services that, as plaintiffs would have it, are null, void, and meaningless.

Had plaintiffs challenged the validity of the contract in a timely fashion, one of the principal purposes of a declaratory judgment action - to avoid unnecessary damages or risk of liability by obtaining an authoritive resolution of issues before performance begins - would have been fulfilled. *Little Beverage Co., Inc. v Delrez*, 777 NE2d 74 (Inc. Ct. App 2002) trans. denied, 792 NE2d 41 (Ind. 2003). As it is, plaintiffs' actions here have the prospect of spawning piece-meal litigation, a result eschewed in declaratory judgment law. *Volkswagenwerk, A.G. v. Watson*, 181 Ind. App. 155, 390 N.E. 2nd 1082 (1979).

It is noted that persons "aggrieved" by a decision of the County Commissioners, including a decision to award a contract, have a statutory period of thirty (30) days from the date of the decision to appeal that decision to the Circuit Court. Ind. Code §36-2-2-27. *See generally, Haywood Pub. Co. v. West*, 39 N.E2d 785, 110 Ind. Ct. App. 568 (1942).

c) defendants Frank S. Kelly and Jeffrey S. Wuensch are entitled to judgment as a matter of loss for claims asserted against them in their individual capacity for the reasons that each of those defendants signed the contract at issue in the respective capacities as officers of NEXUS GROUP, INCORPORATED.

d) Carol McDaniel, as the duly elected Assessor of LaPorte County, is entitled to statutory immunity for the discretionary authority which she exercised in her recommendation to the LaPorte County Commissioners that they enter into a contract with Nexus Group, Inc., as counsel for plaintiffs, Bradley Adamsky, conceded at the hearing. Indiana Code §34-13-3-3.

e) It is emphasized that Assessor Carol McDaniel did not sign the contract with Nexus Group, Inc.. Rather, the contract was signed by the three county commissioners of LaPorte County. Plaintiff's counsel, Bradley Adamsky, has indicated at the hearing that for "tactical reasons" plaintiffs had decided to sue Carol McDaniel, as opposed to the county commissioners; plaintiffs contend that the commissioners acted as the "agent" of Ms. McDaniel in signing the contract. It is generally noted that while Indiana Code §6-1.1-4-18.5 does not specify what person or authority should let and receive bids for professional appraisal contracts, the legislature has specified that

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obligation falls to the board of commissioners for public works projects in excess of seventy-five thousand dollars ($75,000.00), Ind. Code §36-1-12-4.

Carol McDaniel is entitled to judgment as a matter of law on the claim that she engaged in "Official Misconduct," a criminal offense defined by Indiana Code §35-44-1-2. In support of that claim, plaintiffs assert that "Carol McDaniel orchestrated the hiring of Nexus without seeking bids from other private vendors in direct violation of her duties of office." As previously indicated, however, Indiana Code §6-1.1-4-18.5 does not identify what person or entity is required to let and receive bids for professional appraisal services. Consequently, to blithely charge that Ms. McDaniel engaged in criminal activity is an allegation that simply cannot be sustained. Furthermore, the use of a declaratory judgment action to seek a determination that a person is guilty of criminal conduct is an inappropriate use of the Uniform Declaratory Judgment Act set forth in Indiana Code §34-14-1-1 et seq. It is the province of duty-elected prosecutors to protect the interests of the citizenry when criminal laws are violated; significant constitutional guarantees are implicated when a person is charged with committing a crime. In other words, where there is an alternative remedy and no necessity exists for the use of a declaratory judgment proceeding, the court should decline to provide that relief. *Ferrell v. Dunescape,* 751 NE2d 702 (Ind. Ct. App. 2001). Were the door open for any person or entity to use declaratory judgment actions to charge others with criminals acts, a litigation superhighway would be opened for those who would, for whatever reason - be it valid, specious, politically motivated, pure spite or otherwise - target a person or public official with a charge of criminal activity and force the public defense of the charge in a civil arena.

f) for those same reasons, all defendants are entitled to judgment as a matter of law with respect to the claim that they engaged in conspiracy as set forth in Count III. No civil cause of action exists for conspiracy. Charges of conspiracy are matters reserved to prosecutors in the criminal arena. The use of a declaratory judgment action to charge conspiracy is not proper and cannot support a remedy for the plaintiffs against defendants.

8. For all those reasons set forth, defendants are each entitled to judgment as a matter of law.
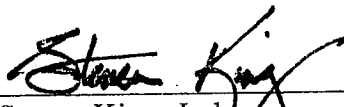
9. Whether the contract at issue is one which should necessarily have been let for bids is a subject on which genuine issues of material fact exist. Regardless of the resolution of that issue, however, no remedy or relief is available to the plaintiffs for the various reasons stated herein.

10. Finally, it is noted that plaintiffs have suggested that their cause of action be certified as a class action. While a representative or class action may be maintained in a declaratory judgment context, a class action lawsuit is improper when the requested class is too large and the questions of law and fact are not common and general to everyone in the class. *King v City of Gary,* 224 Ind. 294, 66 NE2d 888 (1946). Here, plaintiffs suggest a huge class consisting of all property tax papers in LaPorte County with diverse questions of fact, many of whom may have no quarrel with their property tax bills and who may not necessarily wish to proceed with litigation in which the taxpayers engage their government in costly litigation and, in effect, sue themselves.

WHEREFORE, IT IS ORDERED ADJUDGED, and DECREED that judgment be, and it is hereby, entered against all individually-named plaintiffs, as well as the

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MICHIGAN TOWNSHIP CITIZENS FOR FAIR TAXES, INC. and in favor of Carol

McDaniel, individually and as Assessor of LaPorte County, Indiana, NEXUS GROUP,

INCORPORATED, Frank S. Kelly, and Jeffrey S. Wuensch, jointly and severally, and

that plaintiffs shall take nothing by way of their Complaint for Declaratory Relief and

Damages.

Judgment issued this 7th day of March, 2008.

Steven King, Judge
LaPorte Superior Court No. 2

Distribution to:

Attorney Carl Becker
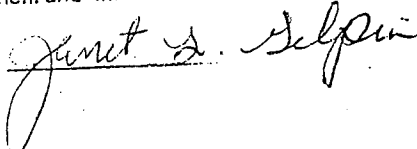3755 East 82nd Street, Suite 220
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Attorney Shaw Friedman
705 Lincolnway
LaPorte, IN 46350

CERTIFICATE OF SERVICE

I certify that on the 7th day of March 2008
service of a true and complete copy of the above and
foregoing pleading or paper was made upon each party
or attorney of record herein by depositing the same in
the United States mail in envelopes properly addressed
to each of them and with sufficient first class postage
affixed.

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YAHOO! MAIL
Classic

From: "Frank Kelly" <frank@nexustax.com>

To: "'Rushenberg, Tim'" <trushenberg@dlgf.in.gov>, cmusgrave@dlgf.in.gov, bwood@dlgf.in.gov

CC: "'Shaw Friedman'" <sfriedman.associates@verizon.net>, "'Marilyn Meighen'" <meighenlaw@att.net>, jeff@nexustax.com, "'Carl Becker'" <cbecker@nbbplaw.com>

Subject: cost tables updates

Date: Sun, 18 May 2008 09:44:34 -0500

Greetings,

Please review the specific, precise question I raised to the Department of Local Government Finance on 8-19-2007 and the specific, exacting response from the DLGF Staff Attorney Renee Lambermont on 8-24-2007. This clearly indicates that "Marshall & Swift" cost and depreciation adjustments are but only one of the available tools per 50 IAC 21 per the Department. This is in stark contrast to the grossly mistaken visual slide and public handout at the May 15, 2008 public hearing in Laporte County .

At your convenience, but before June 1, please let me know how the Department proposes to redress this egregious oversight and erroneous information that the Department widely disseminated at the public hearing. The Department's intentional error and the implications to Nexus Group's business interests are plain and obvious.

Frank Kelly, President
Nexus Group

From: Lambermont, Renee [mailto:rlambermont@dlgf.IN.gov]
Sent: Friday, August 24, 2007 7:32 AM
To: frank@nexustax.com
Subject: RE: Delaware County Directive

Mr. Kelly:

I apologize for not responding sooner. I am currently the only attorney at DLGF, so I have been running a little behind on email responses. Your email was sent before the formal Delaware County directive was issued. The formal directive was issued Monday and is now available on our website at http://www.in.gov/dlgf/. It was written more broadly than the letter sent to Delaware County , which you refer to below, and hopefully clears up your questions and concerns. As you will notice in the findings on page 2 of the formal directive, 50 IAC 21 is referenced and states that if there are insufficient sales, assessing officials shall use other data and information, including, but not limited, to Marshall and Swift cost and depreciation tables, etc. Throughout the directive, DLGF review and approval is required, including when the estimates of value are determined using the cost and depreciation tables. When it comes to the county determining estimates of value, the DLGF will evaluate the cost and depreciation tables at that point and determine whether the estimates of value generated from them are acceptable. We are not attempting to exclude your product; the DLGF's main concern is that the cost and depreciation tables are reflective of actual costs in the marketplace. If your product reflects this, I do not see why it would be excluded from consideration.

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EXHIBIT
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From: Frank Kelly [mailto:frank@nexustax.com]
Sent: Sun 8/19/2007 10:53 PM
To: Wood, Barry
Cc: Barrow, Kurt
Subject: Delaware County Directive

Greetings:

I am concerned with one aspect of the Delaware County directive and potentially subsequent similar directives. Specifically, the second required action states,
"Acquire commercial and industrial cost-based pricing data from a nationally recognized vendor and install the pricing data on the county's computers."

The concern that I wish to express is that this language may be exclusionary, and if so, hopefully unintentionally. My firm – Nexus Group - has undertaken an extensive, thorough update of all Indiana commercial & industrial cost tables as illustrated in Appendix G. These updates, and CAMA-system specific versions thereof, are currently in use by twenty (20) Indiana counties for 2006. We are in process of implementing similar cost table updates for 2007 in all those counties, plus additional ones. We have gone to the additional expense to have these revised cost tables copyrighted. To the best of my knowledge, not only are we the only Indiana-based firm to engage in such a specific update, but no other firms whatsoever and regardless of location offer a similar product specific to the Indiana commercial/industrial costs.

As perhaps you are aware, it is simply not possible to purchase an existing commercial / industrial costing system from any "national" vendor and directly implement that into any CAMA system currently operating in Indiana . While many (but certainly not all) pricing elements could be located, they are not in an easily convertible format.

Further, the DLGF's additional assessment reviews released through 8-17-07 have resulted in several reassessment initiates. Likewise, even more counties have received additional DLGF approval of their 2006 real property values as corresponding with the intent of Indiana law and 50 IAC 21.

To date, all the counties in which Nexus Group has updated costs have been in this latter, approved group, and none in the former, mis-assessed group. The inference here is that whatever we are doing with cost updates appears to assist in the compliance of these counties real property assessments with applicable Indiana Code and/or administrative code.

While I am not as familiar with the assessment updates in other non-client counties, I know that some have used income and/or sales information to individually update some portion of their commercial/industrial parcels, post-costing process. Other counties have implemented a common percentage cost update, in combination with the above-referenced technique. However, I know of no other systematic, specific effort to update and implement the approximate 3000 cost elements contained in Appendix G.

Please let me know at your earliest convenience and in writing if the DLGF feels that Nexus Group meets that intent of the second directive referenced above.   Failing that, can your office provide a preemptive response to this issue if my firm provided a bid to or was engaged by this or other county similarly directed to perform such updates?

Thanks for your time,
Frank Kelly, President
Nexus Group